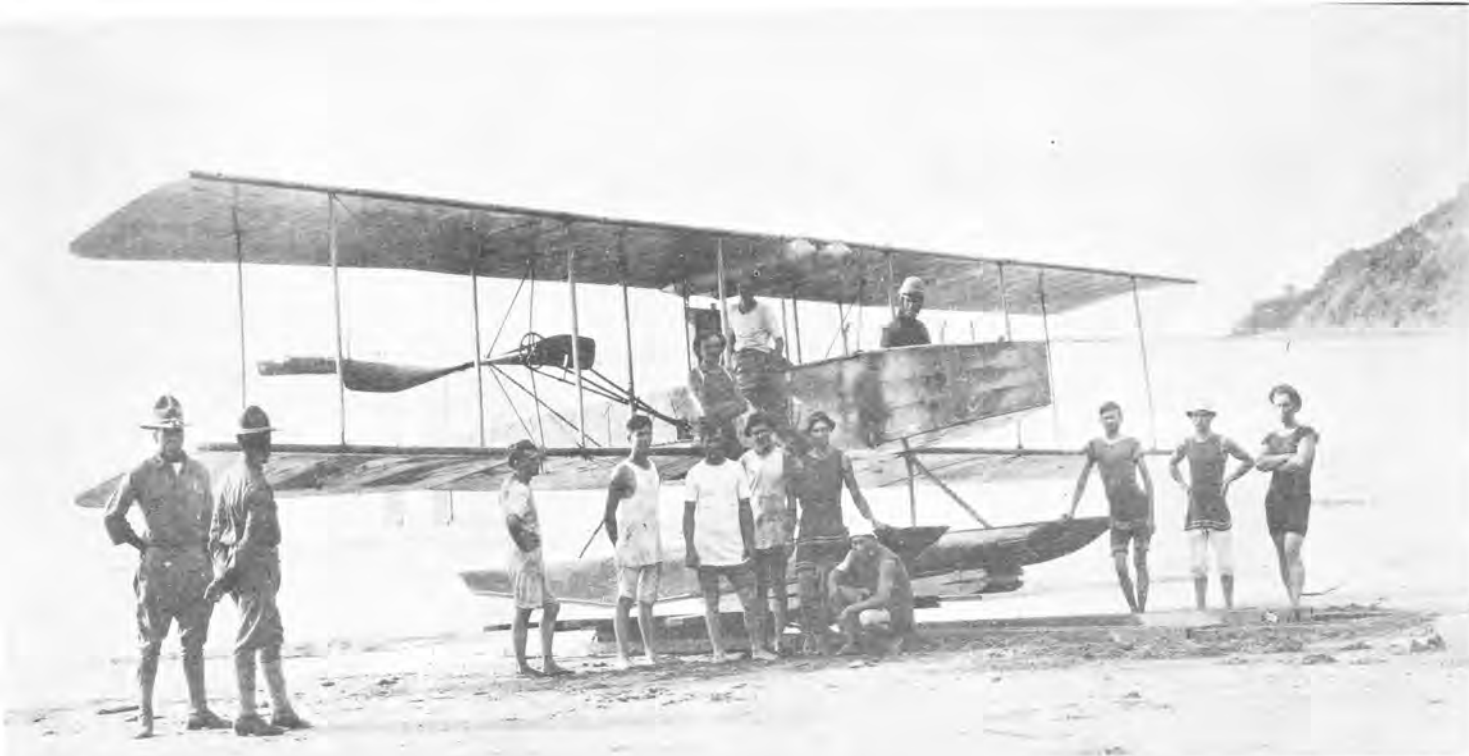




Burgess Model I Coast Defense Hydro at Corregidor, Philippines, 1914. (Smithsonian Institution A-44,833-j)

THE BURGESS STORY

Part 3 - 1913-1914

By BARTLETT GOULD

The day after Christmas, 1912, a trial of the new Burgess Model I was halted by an accident to Greely S. Curtis. With Frank Coffyn in the cockpit, plant manager Russell was swinging one of the twin props and Curtis the other when Curtis lost his footing. He might easily have been killed, but his injuries--a broken leg and some deep cuts--were painful enough as it was.

The mishap delayed the initial flight of the Model I until New Year's Day of 1913 when Starling Burgess took it up. The designer tried some takeoffs and landings, and essayed a few figures 8s. Satisfied with the handling of the new plane, Burgess turned the balance of the testing over to Coffyn.

The Model I, known as the I-Scout or Burgess Coast Defense Hydro, was built for the Army Signal Corps. An extensively modified Wright type, it featured an enclosed fuselage, tandem seating with dual controls, and two large mahogany and copper floats, the latter being strictly a Burgess design. Power was supplied by a 60 hp Sturtevant engine which drove the familiar pusher-type twin Wright propellers by means of a chain drive.

Except for one minor crackup causing negligible damage, the testing of the Coast Defense Hydro went smoothly enough and the Signal Corps accepted the plane on the 21st of January. It was arranged that Lieutenants Loren Call and Eric Ellington would accompany the Model I to Florida and there receive more instruction from Coffyn before taking over as flight crew.

It was evidently during this same month that the Signal Corps took delivery of a Burgess Model J. There is not much information at hand concerning the Model J, except that it was a two-place biplane similar to the Wright C. In PAPERS (p 1208) Orville Wright acknowledged that the Burgess Co. paid royalties on both the Mod-

el I and the Model J, but he regarded them as infringements as he felt the licensing agreement allowed the Burgess Co. to build only exact copies of Wright machines.

There was seemingly a complete misunderstanding regarding this point, for the next production from the Burgess Co. was an outstanding flying boat which bore little resemblance to any Wright plane except for the control system, and even this had been strikingly modified to make the warping action easier.

The new flying boat, the Burgess Model K, was flown for the first time on April 16, 1913 with Starling Burgess as pilot. As usual, he contented himself with a number of takeoffs and landings and a few mild maneuvers to check the general handling characteristics of his new creation, then turned the extensive testing over to Frank Coffyn.

The K-36 was a single-engine two-place flying boat that operated regularly at a speed of about 62 mph. The framework of the boat was spruce and oak, then two layers of mahogany planking with fabric between. The seats were arranged in tandem, which allowed the hull to be only 2 feet 5 inches wide.

The customary Wright controls were used, with elevating lever on one side and combination warp and rudder on the other. However, over the years as flights became longer, it had become increasingly apparent that these controls did not represent one of the Wright's happiest thoughts. In a flight of only moderate duration, the amount of wrist action required was enough to weary a professional acrobat. Accordingly, Starling Burgess devised a way to appreciably lessen the work involved, and this was incorporated in the K-36.

The lower plane was of ordinary biplane construction, with two main spars. The upper plane had but a single

tubular spar situated at the center of pressure. This top plane was staggered forward so that the spar was about in line with the leading edge of the lower wing. The lower wings were rigid, but the ribs on the upper were made with a loose fit on the tubular spar so that when the pilot warped the wings the trailing edge on one side would move down while the leading edge moved upward, with the opposite occurring on the other side. This made the operation of the K-36 comparatively effortless.

Power was furnished by a 70 hp 8-cylinder V-type Renault that drove a 9 foot 6 inch pusher prop. Two strong wooden struts ran from the engine bed to the forward part of the hull, to prevent the not inconsiderable bulk of the power plant from continuing on forward if the remainder of the aircraft should come to a sudden halt.

The Model K had been built for the Navy which had specified the following equipment: compass, altimeter, inclinometer, air speed indicator, chart board, radio and generator. As it happened, the radio and generator were not installed in this plane.

On hand as official observers for the Navy acceptance tests were Naval Constructor Holden C. Richardson and Lt (jg) Patrick N. L. Bellinger. These two watched from the ground while Lt (jg) James M. Murray acted as passenger-observer. First flights were on April 28, but the tests were very thorough and the K-36 was not officially accepted until May 13. It was accorded Navy designation D-1, although this was changed in March 1914 to AB-6.

The D-1 gave satisfactory service to the Navy until February 16, 1914, when Lt (jg) J. M. Murray, who had gone aloft to practice landings, stalled at 200 feet, crashed and was drowned.

Just one week after this tragic event the Navy took delivery of another Burgess flying boat which was given the designation of D-2, subsequently changed to AB-7. Although the AIRCRAFT YEAR BOOK for 1919 indicates that this machine (referred to as Flying Boat Model H) had a different engine, Navy records show the D-2 had a 70 hp Renault.

However, the Flying Boat Model I, built for Robert J. Collier, really was different.

Collier, a wealthy sportsman and early flying enthusiast, did a great deal for the cause of aviation including the donation of the celebrated Collier Trophy. In his excellent book of reminiscences, OUR WINGS GROW FASTER, Grover Loening recalls the Collier personality on page 25:

The generous hospitality, the craze for playing tricks on everyone, the high-power consumption of liquor, the polo parties, the hangovers--all pretty tall stuff for a young engineer to get mixed up in--but a liberal education and a rare opportunity to make friends. There is a tender spot in my heart for Robert J. Collier, and a profound respect for his forthright sincerity and courage and his brilliant energy, which magnetized everyone who came in contact with him.

Collier offered to supply a 220 hp 20-cylinder Anzani provided the company would build a flying boat to accommodate it. Starling Burgess was only too happy to take up this challenge, and the Model I Flying Boat, costing more than \$10,000, was the result.

The new machine was of tandem biplane construction with the engine mounted between the wings and driving directly a 4-bladed propeller through an extension of the crankshaft supported on a steel tube structure. The boat, of the non-stepped type, was built in two sections and could be easily dismantled.

The pilot occupied the rear seat and the lower wing was left uncovered for a distance of about 6 inches either side of the boat, affording the pilot a view directly downward. The controls were of the Wright type, and the innovation in wing construction and warping that first appeared on the K-36 was used here also.

The aircraft was completed in late July and for a few days was not flown at all but taxied furiously around Marblehead Harbor at a speed of 50 mph, in order to get used to the inordinate--for the day--amount of horsepower. Finally, on August 5, Frank Coffyn took off and demonstrated that it could be flown with ease.

During the ensuing days Coffyn gave the plane a thorough testing and demonstrated it with such impressive technique that Collier persuaded him to leave the Burgess Co. and go to work for him.

Before the end of 1913 the Burgess Co. had completed three more H tractor biplanes for the U. S. Army, but although it was not announced officially until January



Starling Burgess piloting the Model K Flying Boat during April 1913. (Smithsonian Institution A-48,354-c)



Frank Coffyn in Burgess Model I Flying Boat with its 20 cylinder Anzani engine. (Smithsonian A-41,479-a)



Anzani-powered Model I Flying Boat built for Robert F. Collier, 1913. (Smithsonian Institution A-42,369)

1914 this same time marked the final collapse of the licensing agreement with the Wright Company.

The agreement had been foundering for a long time. There were probably many reasons, some certainly financial. In a letter to Lt Col Reber, printed in PAPERS, Orville Wright explained that the Burgess Co. had been operating at a loss and was therefore inclined to do a great deal of quibbling. In this letter (which he requested be kept confidential) he also claimed the Burgess Co. had not been entirely truthful in regard to the number of planes constructed.

However, there was another side to the story. On page 57 of the February 28, 1914 issue of *Aeronautics*, Vol. 14, No. 4, there was a statement by the Burgess Co. to the effect that all during the long patent litigation they had been paying a \$1,000 royalty to the Wright Company for each machine they built and receiving no protection in return, consequently the business was running at a loss. The Wright Company had offered to enter into a new contract, but wanted 20 percent of the purchase price of all sales, including parts not covered by the Wright patents.

There may have been another compelling reason for the break. According to Orville Wright's understanding, the Burgess Co. was licensed to make only exact copies of Wright machines, and anything else was regarded as an infringement.

Now, if the Burgess management had anticipated the agreement would ever be subject to that strict interpretation it is more than doubtful that it would have been signed in the first place. W. Starling Burgess was, above all, a creative engineer, and to put him in this sort of straitjacket was like insisting that Pablo Picasso paint only copies of Rembrandt pictures.

Accordingly, during January the Burgess Co. and Curtis dissolved, and a new company was formed with Starling Burgess as president, Greely Curtis as treasurer and Frank Russell as manager. The new company was called, simply, The Burgess Company. (People were always confusing Greely S. Curtis with Glenn H. Curtiss, and this had been a great annoyance.)

When, in the fall of 1913 it became apparent that the Wright agreement was not going to continue, the question arose, where do we go from here? For several years aeronautical journals had been discussing a novel type of airplane, very different from the Wright's but successful in its own way, that had been developed and was being flown in England. It was the work of J. W. Dunne.

Disdaining time-wasting correspondence, Starling Burgess went directly to England and conferred with Dunne personally. Fortunately, Dunne was well and favorably acquainted with the Burgess aircraft and reputation, so it was easy to come to terms. A week later Burgess was able to leave England with the American construction rights to the Dunne machine. A significant feature of the agreement was the permission granted the Burgess Co. to experiment as much as they chose.

Who was this English inventor, and how did his airplane work?

John William Dunne--the same Dunne who, years later, was to achieve fame with the publication of *AN EXPERIMENT WITH TIME*--was a lieutenant in the British Army when, at the age of twenty-six, he commenced a serious study of the problems of flight. The year was 1901, and he was on sick-leave from the Boer War. A small, quiet-spoken and reflective man, whose frail appearance concealed a tough mind and a fierce determination, he soon found himself so obsessed with the idea of flying that he gave little attention to anything else.

Almost from the first his ideal was the completely stable aircraft--the plane that, buffeted by gusts or maneuvered to any position, would automatically return to even keel. Such an approach was diametrically

opposed to that of the Wright brothers. They had wanted maximum controllability and so purposely designed their flyer to be unstable, but in those days, prior to the first World War, the arguments in favor of the type of aircraft envisioned by Dunne were persuasive indeed. In such a plane the operator could make observations, take pictures or perform any number of desirable duties without having his attention taken up with piloting.

After much study and experimentation Dunne finally achieved the design he wanted. He tried to interest the British War Office, with the result to be expected--he might as well have tried to interest a cement wall. However, even a cement wall can be chipped away, and finally, in 1906, Dunne was made a member of the Royal Engineers and told to go ahead.

Experiments were conducted under conditions of extraordinary secrecy, but by 1908 complete success was in their grasp. Unfortunately, however, Dunne needed a 50 hp engine to fly his creation properly, and this was just too much for the British War Office. They pointed out that if flying machines required such expensive engines there could be no possible future for them, and that was that.

Supported by a few friends and believers, Dunne went ahead on his own. A company was formed and set up operations on the Isle of Sheppey. In 1913 the right to manufacture Dunne aeroplanes in France was accorded the Nieuport Company, and the American rights went to the Burgess Co.

The Dunne biplane had no tail, and the wings were swept back at such an extreme angle that the plane looked like a great "V" flying through the air. The angle of incidence changed gradually until the wing tips were actually at a negative angle. The camber, too, changed gradually, getting flatter toward the tips. The center section came together in a steep curve called a "bustle" which deflected the air sideways. The fuselage was quite short and usually seated two in tandem. The engine was behind the rear seat, in some cases driving two pusher propellers or, as in the latest model, one.

The controls were simplicity itself, consisting of two levers, one on each side to operate the ailerons, which, with the amount of sweepback, also functioned as elevators. (The term "elevons" was not used then.) Turning was done by pulling back on one stick and pushing forward on the other. A ratchet arrangement was introduced so that the levers could be locked in any desired position for as long as the pilot wished.

Specializing as they did in water flying, the Burgess Co. planned to produce a float plane version of the Dunne. The inventor himself was very dubious about this idea and told Starling Burgess that he was afraid that both the inherent stability and the balance would be seriously affected. However, after completing a thorough study of the Dunne principles and making exhaustive calculations, Burgess went ahead and designed the first Dunne hydroaeroplane.

The machine, a single-float type, was ready for a trial in January 1914. Naturally anxious to see how his creation responded, Starling Burgess climbed into the pilot's seat and taxied gingerly around Marblehead Harbor. No takeoff was attempted, but it was a relief to ascertain the odd craft handled well on water.

On January 28 Starling Burgess again took the Burgess-Dunne out on Marblehead Harbor, and this time he opened it up. He may have intended a takeoff, but before that could happen the float hit a submerged cake of ice with enough force to badly damage the machine. The designer was uninjured.

A description, photos and 3-view drawing of the Burgess-Dunne appeared in *Aeronautics* for March 31, 1914, and these show the original configuration, before it hit the cake of ice. The machine was rebuilt extensively, and when this was done the nacelle was eliminated, and a second seat was added in back of the first.



Burgess-Dunne Hydro in original form, from Aeronautics, March 31, 1914. (Smithsonian Institution A-31,683-L)

Early in March the Burgess-Dunne was flown for the first time by Clifford L. Webster, test pilot par excellence. From the very beginning the plane behaved better in the air than the designers had dared to hope. Some difficulty was experienced with landing, and it was discovered that the float had been set at too high an angle. With this corrected, there was no more trouble.

The plane was stable to a degree that seemed fantastic. Flight for May 2, 1914 printed a letter from Charles M. Chapin sent from Boston under date of April 2. Chapin had been given a ride in the Burgess-Dunne, and was ecstatic:

...Clifford L. Webster, who taught himself to fly the Dunne, during the entire flight of fifteen minutes did not touch his control levers for any purpose except to correct direction. The wind was blowing at fifteen miles off shore, and was very "bumpy" in spots, especially as we flew over the land. In spite of the side gusts to be felt from time to time in flying across the wind, the writer detected no heeling tendency whatever....

In an earlier flight, solo, Mr. Webster stopped his motor dead at 800 feet without turning down. The machine at once took its proper gliding angle, and the pilot had his hands off the levers from first to last until just ready to flatten out for alighting. Last week he made three complete and successive circles at an angle of approximately 75° with his control levers locked and his hands off most of the time. On the same day he tested for stalling, and pulled up both ailerons to their utmost extent, holding them there for more than a minute. Although the machine assumed an apparently impossible flying angle, it refused to stall...

During the month of April, work progressed rapidly, and a newspaper reported on April 21 that two Burgess-Dunnes had been completed and a third was in process of construction.

By this time the Burgess experiments were receiving much attention, and a committee of the Aero Club of America arrived on May 2 to observe and report. The committee was comprised of Messrs. Wendell, Woodhouse, Huntington, Steinmiz, Bronson and Turner. Two other Aero Club members, Mayo and McGordon, came along, evidently out of plain curiosity.

The tests were flown by Clifford Webster and lasted from about 11:00 A.M. to 4:30 P.M. The wind was quite strong, but this only allowed the plane to show off to advantage.

The report of the committee appeared in Flying for June 1914 and was enthusiastic to a degree seldom encountered apart from advertising copy. Webster had demonstrated that the Burgess-Dunne could be put in almost any position and, by itself, recover and continue flight on an even keel. He put the plane in a steep bank, locked the levers and the plane continued its turn until Webster unlocked the levers.

Landings were made by a launch two miles out in the harbor to take on gasoline and passengers. Four committee members were taken, in turn, for rides. In each case Webster stopped the engine while the passenger took his seat, then using the crank at the front of the float, he started the engine again.

The committee's glowing report wound up with these words: "The unanimous opinion at the end of the tests was that the Burgess-Dunne solves the problem of inherent stability and represents an important development in American aeronautics."

The military was very, very interested. On May 15 Webster treated the following servicemen to rides over Marblehead in the Burgess-Dunne: Captain Arthur C. Cowan of the U. S. Army, Lt (jg) Victor D. Herbster of the U. S. Navy, and Naval Constructor Holden C. Richardson. On May 26 Richardson recommended that the Navy buy two Burgess-Dunnes, "...as it appears to be only the beginning of an important development in aeronaut-

ical design."

In June a landplane version of the Burgess-Dunne was tried, and it was discovered that control on the ground left much to be desired. Not only was the Dunne difficult to taxi, but if the surface was only slightly uneven the pilot would have his eyeteeth almost jolted loose. However, in the air it was more than satisfactory and it was felt that ways could be found to improve the handling on the ground.

On June 24 a candidate for Congress, A. Piatt Andrew, hired the Burgess-Dunne and, with Webster piloting, flew along the coast to the mouth of the Merrimack then up the river to Haverhill. After circling the city a few times a landing was made at the Haverhill Yacht Club where, it was reported, they attracted a crowd of nearly 5,000 spectators. The trip took 47 minutes. Back in Marblehead the future Congressman expressed delight at the jaunt, and (probably with the 5,000 spectators in mind) declared that he would campaign by aeroplane in the fall.

During July there was further experimentation with the Burgess-Dunne, while over in Europe governments drifted--or, rather, marched determinedly--toward the consummation of their latest episode in insanity. For yearsnow preparations for war had proceeded, sometimes openly, sometimes clandestinely, but always they had proceeded. Finally, on July 28, Austria-Hungary and Serbia managed to start it off, and the month of August was peppered with declarations of war.

In this country most people may have failed to appreciate the full import of the happenings abroad, but some, at least, were far from indifferent. On August 6 Clifford Webster took the Burgess-Dunne for a leisurely flight over Boston Harbor, passing near the Navy Yard. The officials in charge sent out an immediate alarm, suspecting the Burgess-Dunne was some hostile aircraft that had been released from a ship at sea.

It was also during August that Webster gave a convincing demonstration of how easy it was to fly a Dunne by soloing two students--both complete novices--with little more than an hour's instruction each. Starting August 20, Ensign Walter A. Edwards took it up alone on August 28, after 74 minutes of instruction, while a civilian, A. N. Cunningham, starting the same day, soloed on the 25th after 78 minutes.

The U. S. Navy ordered two Burgess-Dunnes, and the Army Signal Corps another, but the first Burgess-Dunne to be actually delivered went to the Canadian government. The plane was shipped to Lake Champlain and from there Clifford Webster, accompanied by Captain Janney, flew to Sorel, and then by easy stages, to Quebec.

While Webster was having the Burgess-Dunne gassed at Sorel, Captain Janney went uptown and was detained a short while until he could establish his identity. Webster knew nothing of this trivial incident at the time, but after the plane had been safely delivered and he had returned to Marblehead, he was edified to read in the local papers that he had been arrested as a German spy!

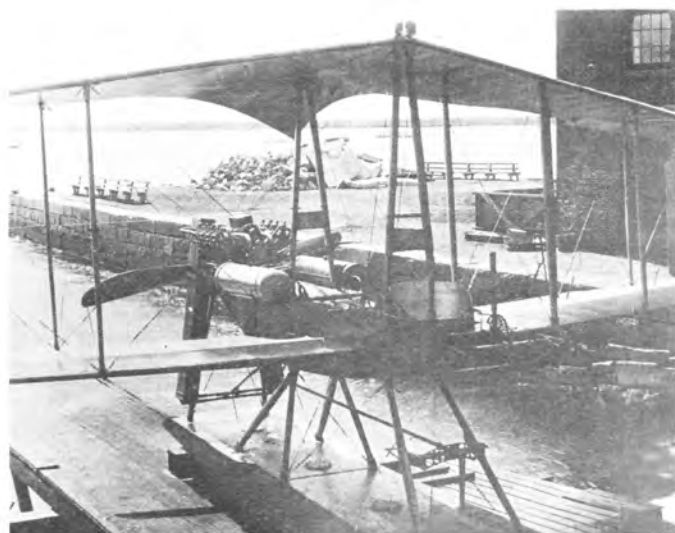
It is not clear whether the Burgess-Dunne sold to Canada was the first built or the second. Information regarding it was sparse, but at any rate, it was entirely open, had a width of 47 feet (including the wing-tip floats, each of which projected about 6 inches beyond the lower wing) and was equipped with a Curtiss 90-100 hp OX engine.

The Navy's first Burgess-Dunne, designated the AH-7, was delivered to Newport News during October. It was equipped with a 90 hp Curtiss driving a 3-bladed propeller, although it is known that later on the Navy flew this plane with a 2-bladed propeller. The Navy used it almost entirely for training purposes. It was very similar and in some details probably identical to the Canadian Burgess-Dunne.

The Burgess-Dunne built for the Army Signal Corps



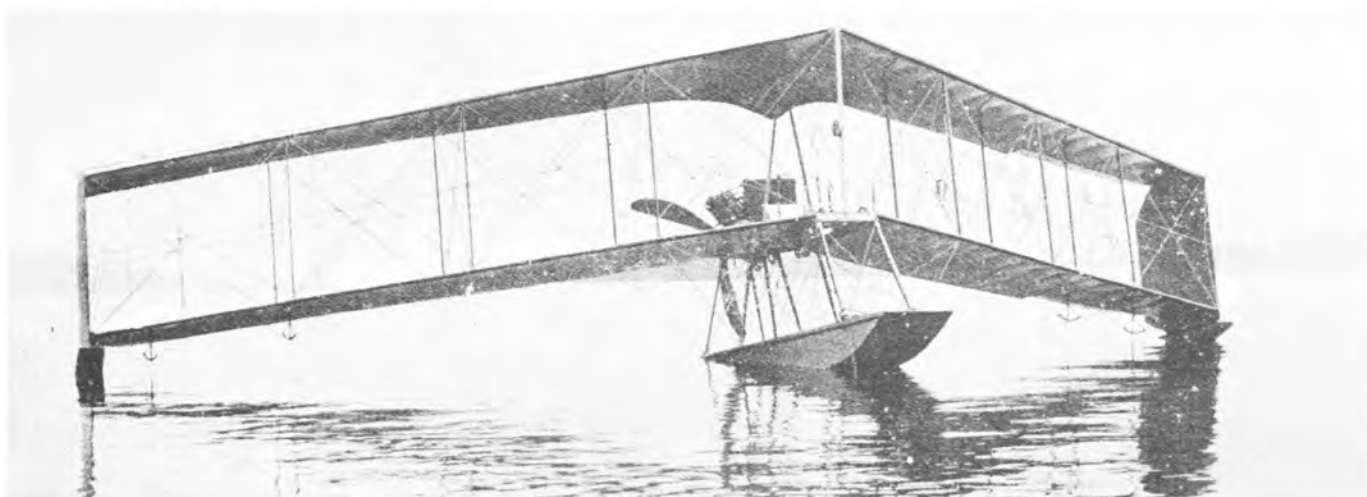
Clifford L. Webster, above crank for starting engine, and H. Roy Waite in Burgess-Dunne. (Smith'n A-48354)



Burgess-Dunne with two long radiators mounted on rear float strut. (Smithsonian Institution A-48,523-a)



The Burgess-Dunne at rest in Marblehead Harbor, Massachusetts during 1914. (Smithsonian Institution A-48,524-B)



The Burgess-Dunne used by the U. S. Navy for training purposes. (From Burgess Catalog, undated, circa 1914-15)

was of a very different design. In the first place it could operate off either land or water, being equipped with a skid-and-wheel arrangement similar to that used on the H tractors, with the wheels easily removable and the skids designed to be fastened securely to a central float. Pilot and passenger sat in tandem in enclosed cockpits equipped with a Turner aviaphone and a Benet-Merciers gun, and were protected with 100 pounds of armor plate. Fully loaded it climbed at 350 fpm and achieved a top speed of 75 mph.

According to the description and drawing from Aeronautics, the Army Burgess-Dunne was equipped with a Salmson 9-cylinder engine of 135 hp and with this U. S. ARMY AIRCRAFT 1908-1946 concurs. However, UNITED STATES MILITARY AIRCRAFT SINCE 1909 describes it as having a 200 hp water-cooled Canton-Unne radial. Flight for November 20, 1914 (p 1133) said it was a Canton-Unne of 120-130 hp. All of which suggests the Army tried out more than one engine in their Burgess-Dunne.

However, regardless of what powerplant came with it, the plane was delivered to the Army Signal Corps at San Diego on December 30, 1914.

NOTES ON BURGESS AIRCRAFT

The Model I was known variously as the Burgess I-Scout or the Burgess Coast Defense Hydro, and was designed to Signal Corps specifications. Span was 39 ft. 9 in.; chord 6 ft. 3 in.; length overall 31 ft. 4 in. Gross weight was 2038 lbs. Propellers were 9 ft.

The fuselage was entirely enclosed in fabric except for a section near the engine which was covered with sheet aluminum. The float design, patented by Burgess, had the step slightly to the rear of amidships.

With Coffyn at the controls the I-Scout climbed 210 fpm with a 500-lb load. The two hour flight with 450-lb. load was made at a speed of 59.2 mph.

The British publication Aeronautics, Vol. VI, No. 62, April 1913, pp. 146 and 147, carried a three-view drawing of the plane, plus a short but informative article. The United States Aeronautics carried a drawing and description in their issue of February 1913, Vol. 12, No. 2. In Flying for March 1913, Vol. 2, No. 2, there is a description of the Coast Defense Hydro by Frank Coffyn.

Page 249 of HOW OUR ARMY GREW WINGS by Chandler and Lahm tells of the I-Scout being received in the Philippines during September 1913. It was assigned to Corregidor for radio communication, observation, etc., in charge of Lt Dargue, and was finally destroyed in a crash on January 12, 1915.

The Model J is, at this writing, something of a mystery and no photos or drawings of it have been located. U. S. ARMY AIRCRAFT 1908-1946 designates it the J-Scout and remarks it was similar to the Wright C except for wing curve.

UNITED STATES MILITARY AIRCRAFT SINCE 1909 calls it a Wright design modified.

Span was 39 ft. 8 in.; length 24 ft.; it was powered by a 40 hp Sturtevant D-4 and had a top speed of 45 mph. The Smithsonian lists it as being delivered to the Signal Corps during January 1913.

The Flying Boat K-36 is given the following dimensions in the Burgess catalog: Span, 43 ft. 6 in.; overall length, 32 ft.; weight empty 1450 lbs, loaded 2160 lbs.; speed range 40 to 58 mph. Gas was carried in two tanks situated in the central part of the boat and a small propeller operated a pump which forced the fuel from the main tanks to a service tank above the engine. Aircraft for June 1913, Vol. 4, No. 4, carried an article by Frank Russell on the Model K. Flying, Vol. 2, No. 5, June 1913, also carried a description of the K-36 with two photos. Flight, Vol. V, No. 26, June 28, 1913 featured a scale drawing and article on the plane. There are some minor discrepancies in these various accounts.

A sketch and excellent description of Robert J. Collier's Model I Flying Boat (not to be confused with the I-Scout) is given on pages 212 and 213 of Flight, Vol. VI, No. 9, for February 28, 1914. Span of the upper wing was 41 ft. 4.5 in.; lower wing, 33 ft. 4.5 in. Overall length was 30 ft. 6 in.; weight was 2050 lbs.

The wings were built up on a tubular steel spar 3.5 inches in diameter, with a hollowed-out wooden leading edge and a wooden stringer parallel to the spar. A single row of struts was used, with cables to provide firmness.

Flight remarked: "This construction does not impress one as being particularly strong, especially in a machine with so powerful a motor...but according to reports the makers do not seem to have experienced any trouble from this source."

Contemporary accounts vary, but the speed was certainly in the 75 mph-85 mph range.

Aircraft, Vol. 4, No. 7, September 1913, pp. 164-165, carried a scale drawing of the Collier Flying Boat with a description by Frank Russell.

So far as the Burgess-Dunnes are concerned, it may be nit-picking, but a few puzzles and discrepancies might be mentioned. In the first place, it is not easy to ascertain just how many were made during 1914. The persons who were involved at the time cannot be expected to remember exact details and dates after an interval of more than 50 years, and the printed accounts of the day are occasionally ambiguous.

Another question, so far unanswered, concerns the Burgess-Dunne with the two long radiators. Flight, June 19, 1914, calls it the second model, but it may have been the rebuilt version of the first. This was flown to Haverhill by Webster and Andrew, and there is some evidence that it was the one sold to the Canadian government. However, a beautiful painting of Canada's Burgess-Dunne by R. W. Bradford controverts this.

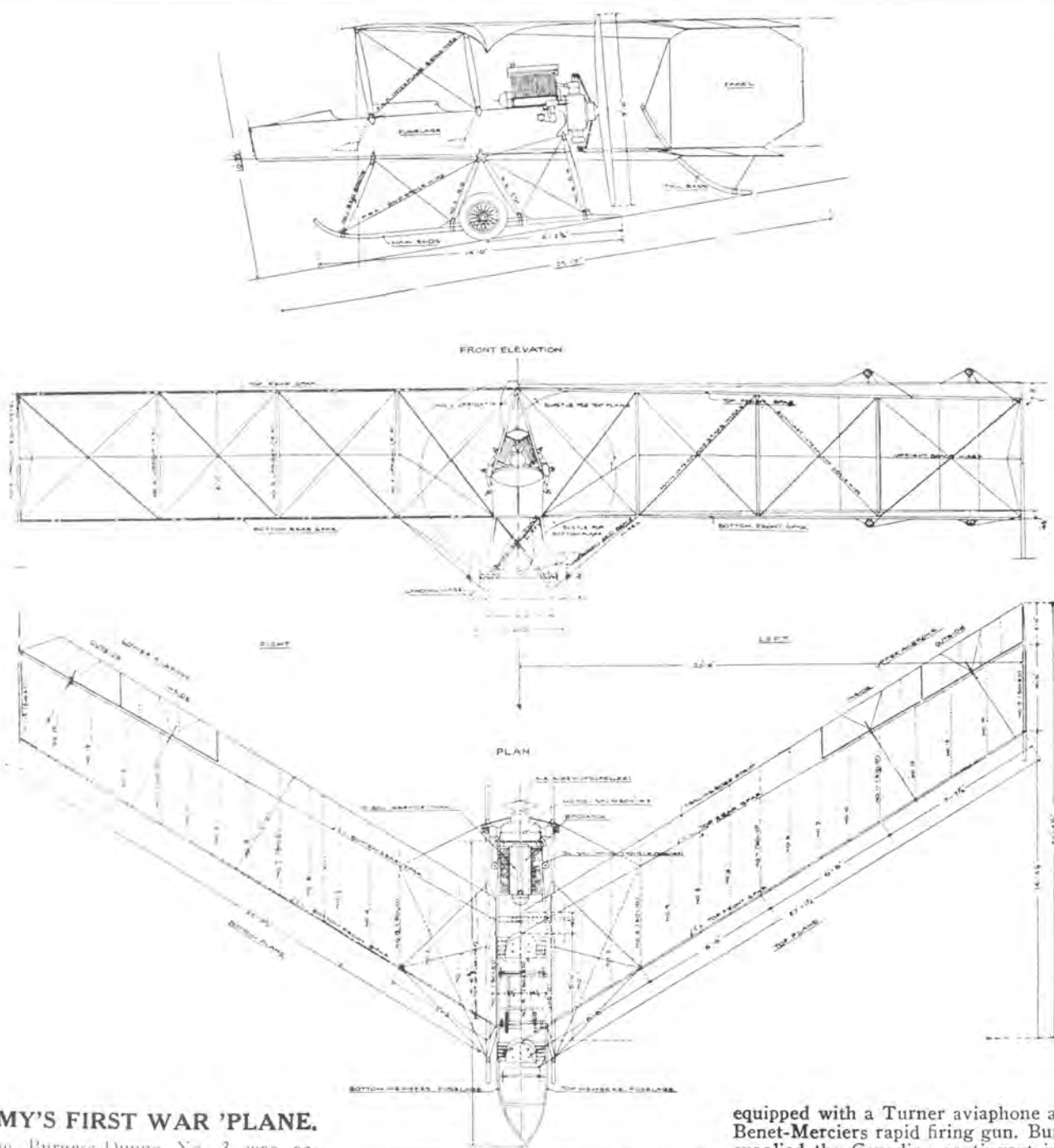
Finally, we might note the Burgess Co. described the plane delivered to the Army as Burgess-Dunne No. 3, and this is also the designation given by the magazine Aeronautics in the short article reproduced here. However, the drawing accompanying the article--and presumably illustrating it--is entitled Burgess Dunne No. 2, and seems to be the same airplane minus the float.

BIBLIOGRAPHY

- AIRCRAFT YEAR BOOK, 1919. New York: Manufacturers Aircraft Association, Inc. 398 pp. Indexed.
 Babington-Smith, Constance. TESTING TIME--THE STORY OF BRITISH TEST PILOTS & AIRCRAFT. New York: Harper & Brothers, 1961. 225 pp., indexed, photos. Excellent chapter on Dunne.
 Bonney, Walter T. THE HERITAGE OF KITTY HAWK. New York: W. W. Norton & Co., 1962. 211 pp., indexed, photos.
 Brett, R. Dallas. HISTORY OF BRITISH AVIATION 1908 - 1914 (2 Vol.). London: Aviation Book Club, n.d.



Burgess-Dunne delivered to U. S. Army Signal Corps at San Diego, Calif., December 30, 1914. (Burgess Cat.)



ARMY'S FIRST WAR 'PLANE.

The Burgess-Dunne No. 3 was accepted by the Signal Corps Board after successful tests at San Diego, December 30, 1914. It is equipped with a 135 h.p., 9-cylinder Salmson motor. The machine developed a speed of 75 miles per hour with full load, consisting of two passengers, four hours of fuel. In this condition it climbed 350 feet a minute.

This machine was built as an experimental type subject to further development. The wings are of the same dimensions as the original Burgess-Dunne aeroplane. See p. 83, March 31, 1914, *AERONAUTICS*. "The machine is inherently stable in the broadest meaning of the term."

Scale Drawing of the Burgess-Dunne, No. 2

During the tests Mr. Webster allowed the machine to fly by itself for long periods, and demonstrated that it could not be stalled even with the levers pulled back and the motor suddenly shut off. It was not expected that this aeroplane would develop anything like the speed or climbing power shown in the tests and its success demonstrates beyond doubt that high efficiency may also be obtained in the inherently stable type of aeroplane. The machine is shown

equipped with a Turner aviaphone and a Benet-Merciers rapid firing gun. Burgess supplied the Canadian contingent in the big war.

Burgess has so built this type that its upper and lower wings by means of hinged struts are capable of being folded one against the other. The flying wires remain at all times intact and the wing supporting wires alone need be cast off for disassembling. These features together with the entire absence of tail and tail surfaces make this aeroplane compact and easy to handle.

Wing spread, 45 ft.; length over all, 26 ft.; height, 10 ft. 11 ins.; weight, net, 1250 lbs.; fuel, oil and water for 300 miles, 420 lbs.; armor, 100 lbs.; useful load, 420 lbs.; total, 2140 lbs.

423 pp., indexed, appendices, photos and diagrams.
 Chandler, C. DeF. & Lahm, F. P. HOW OUR ARMY GREW WINGS --AIRMEN AND AIRCRAFT BEFORE 1914. New York: Ronald Press Co., 1943. 333 pp., indexed, appendices, illus. with photos.
 Davy, M. J. B. INTERPRETIVE HISTORY OF FLIGHT. London: His Majesty's Stationery Office, 1937. 206 pp., indexed, photos, bibliography.
 Fahey, James C. U. S. ARMY AIRCRAFT, 1908-1946. New York: Ships and Aircraft, 1946. 64 pp., illustrations and listings.
 Gibbs-Smith, C. H. THE AEROPLANE--AN HISTORICAL SURVEY OF ITS ORIGINS AND DEVELOPMENTS. London: Her Majesty's Stationery Office, 1960. 375 pp., indexed, illus., tables, addenda, etc.
 Larkins, W. T. U. S. NAVY AIRCRAFT, 1921-1941. Concord, Calif.: Aviation History Publications, 1961. 391 pp., indexed, photos, appendices.
 Lewis, Peter. BRITISH AIRCRAFT, 1809-1914. London: Putnam & Co., 1962. 576 pp., indexed, photos, diagrams, chronology. Good section on Dunne.
 Loening, Grover C. MONOPLANES AND BIPLANES. New York: Munn & Co., Inc. 1911. 331 pp., indexed, illus. with photos and diagrams.
 ——. OUR WINGS GROW FASTER. New York: Doubleday & Doran, 1935. 203 pp., no index, illus. with photos.
 Miller, Lt Commander Harold B., U.S.N. NAVY WINGS (New and revised edition.) New York: Dodd, Mead & Co., 1942. 364 pp. indexed, photos.
 Morehouse, Harold E. "Flight From The Water" A.A.H.S. JOURNAL, Vol 9, No 3 (Fall, 1964), pp. 172-178, illus. with photos.
 Swanborough, F. G. & Bowers, P. UNITED STATES MILITARY

AIRCRAFT SINCE 1909. London: Putnam & Co., 1963. 596 pp., indexed, appendices, photos, diagrams.
 Van Wyen, A. O. & Pearson, Lee. UNITED STATES NAVAL AVIATION 1910 - 1960. Washington, D.C.: Bureau of Naval Weapons, N.D. 239 pp., indexed, appendices.
 Wright, W. & O. THE PAPERS OF WILBUR AND ORVILLE WRIGHT. Marvin W. McFarland, Editor. (2 Volumes) New York: McGraw-Hill, 1953. 1278 pp., indexed, appendices, photos and diagrams.
 Periodicals: Aviation magazines of 1913 and 1914 that were researched included Aircraft (monthly); Flying (monthly) and Aeronautics (varied). These were American publications; British magazines consulted were The Aeroplane (weekly); Flight (weekly) and Aeronautics (monthly). The newspaper that appeared to cover Burgess Co. doings most comprehensively was the Lynn Daily Evening Item; this is on file at the Essex Institute, Salem, Massachusetts.

ACKNOWLEDGMENTS: Although many others have helped, I have to thank especially these patient people who have continually gone out of their way to be of assistance: Mrs. Helen B. Bolster; George Fuller; Robert Gould; T.A. Hodgdon; Mr. and Mrs. Harold Morehouse; David Proper; H. Roy Waite and Clifford L. Webster. The personnel of the Essex Institute of Salem, Massachusetts and the Widener Library at Harvard have been unfailingly courteous and helpful.

EDITOR'S NOTE: Bart Gould of 15 Walnut St, Newburyport, Mass. 01950, will continue the Burgess Story in Volume 12 of the JOURNAL, covering the years 1915-16. Two or three more parts will complete the full story.